

Admission Evaluation for FAU Busan

Our decision for admission goes beyond any numerical formula or grade. In addition to the primary criterion of academic excellence, we look for students with high potentialities who can display a high degree of intellectual energy and creativity.

FAU Busan philosophy is to build on the points of strength in students. This will be reflected in the evaluation process of applicants in which the admission decision is not dependent on the grades obtained in the undergraduate studies, but on the points of strength of the individual student.

The evaluation consists of two parts:

- A multiple choice test in English language in the fields of
 - Biology, Biotechnology, Bioprocess- and Environmental Process Engineering
 - Chemistry and Chemical Reaction Engineering
 - Physics, Mechanical Process Engineering and Fluid Mechanics
- An oral interview/discussion about the same topics

The multiple choice test focusses on simple questions regarding the fundamentals of each field. The multiple choice test serves as the starting point for the oral discussion.

The goal of the oral discussion is to see if the student has fundamental knowledge in the areas related to his major and if the student is able to develop solution strategies for new problems.

In the oral discussion the students are encouraged to answer questions by “thinking aloud”, because the way a problem is tackled is sometimes more revealing than just the correct answer.

Since FAU Busan enrolls students from different fields the entry exam will focus on the fields related to the major and the specific topics the student has studied. We will ask questions in the other fields but will not expect the student to have more than the most fundamental knowledge on high school level. E.g. a student from biology or biotechnology does not need to be able to answer questions regarding mechanical engineering and vice versa.

We will refer to the courses and labs taken according to your grade sheet. So again, don't worry if you do not have knowledge in all of the fields covered!

The following list might serve as a guideline which topics you might want to prepare:

Biology, Bioprocess- and Environmental Engineering:

- general principles
- pH
- waste water treatment
- pro-/eucaryotes (differences)
- simple molecular biological principles and methods
- enzymes and enzyme kinetics
- bio reactors
- simple essential biological-catabolic pathways
- simple industrial processes

Chemistry, Chemical Reaction Engineering

- common chemical compounds (e.g. sulfuric acid, ammonia, toluene, etc.)
- classes of products (polymers, fuels, etc.)
- catalysis
 - types of catalysts(homogeneous catalysts, heterogeneous catalysts, biocatalysts)
- reaction kinetics (description of chemical reactions)
 - types of reaction
 - rate laws
 - activation energy
 - temperature dependency (Arrhenius law, activation energy)
 - concentration dependency

Physics, Mechanical Process Engineering and Fluid Mechanics

- fundamentals of physics
 - free fall
 - Newton's Laws
 - elasticity
 - circular motion
- filtering, separation
- buoyancy (Archimede's Law)
- simple flows
 - Euler equation
 - Boussinesq equation
 - pipe flow